HPS-HRA-637

Bulletin

U. S. NAVAL RADIOLOGICAL DEFENSE LABORATORY
SAN FRANCISCO 24, CALIFORNIA

15 August 1952 No. 235

" Every man who is in the vigor of life ought to serve his country in whatever line it requires, and he is fit for."
--George Washington.

ADVANTAGES OF THE NAVAL RESERVE

The important thing to consider about the Naval Reserve Program is the opportunity to gain promotion and to earn in spare time retirement benefits which are comparable to those enjoyed by the regular Navy. Not only will credit be received for all active duty time but also retirement credit for just a little effort during the years of civilian life. A Reservist becomes eligible for retirement at the age of 60 provided he has performed a minimum of 20 years "satisfactory Federal service." This service may consist of both active duty and/or association in an Organized or Volunteer Unit of the Naval Reserve.

A minimum of 50 points must be earned within one year, and some of these will be earned as 1 point per day for each day of active service. Fifteen points for each year of inactive service will be given for simply belonging to the Naval Reserve. Other points may easily be earned for attending authorized drills, classes, or other meetings, and also for completed correspondence or home study courses.

The Naval Reservist will have the satisfaction of helping his country to maintain a strong stable Naval Reserve and as a reward for this service will receive substantial retirement benefits that can be figured in dollars and cents.

Here's how to figure the annual amount of retirement pay: Add the total points earned in 20 years of satisfactory service, and divide that sum by 360 days in one year. Multiply this quotient by 2-1/2% and multiply that result by the annual basic pay that would be received for active duty in the highest grade of service satisfactorily held.

For example, with the basic pay of a Commander, $527.25 per month and 5 years of active duty: (Up to 60 points may be earned each year by inactive duty.)

60 points per year x 15 yrs.	= 900 points
5 years x 360 days per yr.	= 1800 "
2700 total points for 20 yrs. ÷ 360	= 7.5
7.5 x 2-1/2%	= .1875
.1875 x $6327.00 (annual basic pay)	= $1186.31

Yes, $1186.31 received annually as a reward for just a little effort during 15 years of inactive service.

(Information from Medical News Letter, 8 Aug. 1952.)

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PROSPECTIVE VISITOR

CAPT Frederick R. Furth, Assistant Chief, BuShips for Electronics, will visit the Laboratory sometime between 15-20 August to discuss electronics matters.

NEW CIVILIAN PERSONNEL

ADMINISTRATIVE SERVICES DIVISION

Mary Ethel Gretzinger, a Clerk-Typist, has been detailed by the Stenographic Section to Biochemistry Branch, Bio-Med Division. Mrs. Gretzinger was born in Hamilton, Ontario, Canada, and is a naturalized citizen of the USA. She graduated from high school in Flint, Michigan in 1927, and from Flint Junior College in 1929, majoring in literature in both schools. Mrs. Gretzinger's joining the Lab staff adds another husband-wife team. Her husband, Jack, is a Hospital Corpsman, is a member of Bio-Med Division. Before coming to NRDL Mrs. Gretzinger was last employed at Medical Research Unit #4, Great Lakes, Illinois, as a statistical clerk. The Gretzingers and their baby son, Thomas, live at 1000 Donahue Street, San Francisco, phone MIssion 8-3692. Reading is Mrs. Gretzinger's main recreation.

ENGINEERING SERVICES DIVISION

Leroy Marsh Bryant, a Glass Apparatus Maker, recently came to the Shops Branch of Engineering Services Division. Mr. Bryant is a native Californian, having been born in Richmond and attending high school in that city. He was previously employed as the senior glass blower at the Radiation Laboratory, University of California. A Navy veteran, Mr. Marsh held the rate of Chief "Bosun" Mate. He should be quite popular in the Laboratory since his main hobby is sport fishing--he owns his own boat and is licensed for sport fishing. He and his wife, Ida, live at 5916 Panama Avenue, Richmond, phone LAndscape 5-1036.

George Ross Hibbs, an Electrician, joined the forces of Plant Maintenance Branch this week. He was born in Morgantown, West Virginia, and graduated from high school in Mannington, W. Va. Mr. Hibbs also graduated from the National Radio School, Cleveland, Ohio, in 1948. He comes to the Laboratory from Bethlehem Steel where he was also employed as an electrician. During the war he served in the U.S. Army Air Corps as a Corporal. He, his wife, Gertrude, and their daughter, Sandra, reside at 1 Santa Rosa Avenue, Sharp Park. Baseball is Mr. Hibbs' hobby.

TECHNICAL INFORMATION DIVISION

Ruth A. Barich, Publications Editor, is a new addition to Publishing Branch. Miss Barich came to NRDL from Tide Water Associated Oil Company where she was publications editor of the monthly magazine "Let's Get Associated." Miss Barich was born in Butte, Montana. She finished high school in Salt Lake City, Utah, in 1939, majoring in English and art, both there and at the University of California from which she received a B.A. degree in 1944. Since then she has studied writing at the University of San Francisco. Miss Barich lives at 33 Genoa Place, San Francisco, phone EXbrook 2-3137. Her hobbies include photography, cooking, writing, and drawing.

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DR. FISHLER HAS NEW HOME

Dr. Maurice C. Fishler, Head of Biological & Medical Sciences Division, recently purchased a house at 841 Reid Avenue, San Bruno. He and Mrs. Fishler and their two sons will move today.

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TRANSPORTATION TROUBLES

Driver for Car Pool
Palo Alto
Earl Roberts (Ext. 3100)
3509 Laguna (Barron Park)
DA 2-6344

Ride Wanted
San Francisco
Martha Klein (Ext. 2697)
136 Guerrero Street

2 Drivers for Car Pool
Millbrae - San Bruno Districts
LCDR R. K. Skow (Ext. 2452) or W. C. Cowan
OX 7-4640 (Ext. 2278)
JUno 3-1721

Rider or Driver
East Bay
William Finley (2675)
2725 Ashby Place, Berkeley
TH 3-6128.

ENGINEERING SERVICE SHOPS HAVE NEW CONTACT MAN

James Hatak is now the Toolmaker-Leadingman in the Engineering Services Machine Shop. Those scientific people who use the shop will contact him for jobs they wish performed. If you need service from the shop just call Ext. 2666 and "ask for Jim."

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MR. SHARPE RETURNS FOR SEMINAR

The subject of the Management Seminar scheduled for 6 August will be heard next Wednesday, 20 August, with Mr. Russell T. Sharpe, Administrative Vice-President of Golden Gate College, conducting. Mr. Sharpe will talk on "Combining and Separating Activities," showing how departments, divisions, etc., should be formed. The subject formerly scheduled for 20 August--"Working Together in Groups" -- was heard on 6 August, and was reviewed in the BULLETIN on 8 August.

PLEASE NOTE! The Training Room in BOQ, Bldg. 500, is no longer available. Beginning next week the Seminar will be held in the Conference Room, 2nd floor, Shop 11, Bldg. 411, across from Bldg. 351.

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GOLFERS NEEDED

Beginning Sunday, 7 September, at 10:00 AM at Crystal Springs Golf Course on Skyline Boulevard (Highway 5), San Mateo, the Laboratory will play another golf match in anticipation of a tournament when teams are organized. Once underway, this should provide a good time and also get Lab people better acquainted and develop good games. All personnel are URGED TO PARTICIPATE--both military and civilian, boys and girls. The $$$ involved will be green fees plus $1.00 to go toward a winner's trophy. For additional information or to sign up, contact Tony Benedetti, Ext. 3012, or Nick DeLambo, Ext. 2666.

Be sure you call by 25 August, the deadline for submitting the number of players to the golf starter.

LABORATORY VISITORS

FROM UNIVERSITY OF CALIFORNIA, DAVIS:
LCDR Arthur H. Smith, USNR
Mr. Ivan M. Lytle

Dr. Ernest O. Weinman
UCLA

Mr. Harry M. Donaldson
U.S. Naval Civil Eng. Res. & Eval. Lab
Port Hueneme

Col. L. O. Rostenberg, USA
Army Chemical Center, Md.

FROM USN AIR MISSILE CENTER, PT. MUGU:
Mr. Thomas E. Hanes
Mr. Edison E. O'Connell

Major T. W. Gavey, USA
AFSWP, Washington, D. C.

FROM AWCO, SAN FRANCISCO:
Miss Beverly Tyra
Dr. Paul B. Steinman

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50 LITTLE-KNOWN FACTS ABOUT THE ATOM

By Dr. Ralph E. Lapp.
(Published through courtesy of COLLIERS)

44. Will our Air Force get atomic aircraft?

Yes. The answer should undoubtedly be hedged with some "maybes" or "probablies" but it now appears that a nuclear power plant can be developed to propel an aircraft. The first A-plane will be of the heavy bomber class, since the atomic motor will weigh about 30 or 40 tons. Development of an atomic engine sufficiently rugged to withstand the stress of flight is much more difficult than making a land-based prototype. The General Electric Company has undertaken design-work upon the air craft engine, and Convair Aircraft is studying the air frame problem. No engine construction is under way. A guess, and it is little more, puts the date of nuclear-powered flight close to 1960.

INVENTIONS -- OLD AND NEW

The Patent Business is thriving. A total of 44,356 patents were issued in 1951, an average of 853 a week. A large number of these were in the fields of chemistry, electronics, and metallurgy. Not only are new chemical compounds being patented, but improved processes in the production of compounds already known. In electronics, development of television and new facilities in telephone communications are outstanding. In metallurgy there are new alloys to sustain heat for jet engines, and other alloys reduce weight in steel without sacrifice of strength.

X-ray for Refining Gold -- The Electro-Royal Separator is a newly patented machine which uses high voltage current and static electricity to separate gold from dry sand and dust.

"Crown Cork"-- This is the crimped bottle top invented by William Painter, a Baltimore machinist in 1892. The Crown Cork and Seal Company now has factories all over the world.

(Information from INVENTION NEWS
of National Patent Council)

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NEW MILITARY PERSONNEL

Major William John Welsh, Jr., USA, is the new Transportation Corps Liaison Officer. Major Welsh finished high school in his native city, Newburgh, New York, in 1937, and graduated from the Military Academy, West Point, in 1943. His last duty was at the Transportation Research & Development Station, Fort Eustis, Virginia. Major Welsh, his wife, Dale, and children, William John, III, Pamela, and Jeffery, live at 2624 Isabelle Avenue, San Mateo. Golf and tennis are the Major's main recreation.

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Life itself can't give me joy
Unless I really live it.
Life just gives me time and space
It's up to me to fill it.
--Rebecca McCann.

ATTENSHUN! EX-SERVICE WOMEN.

Were you a WAVE, a WAC, a SPAR, or a Lady Marine? If so, would you like to plan some get-togethers, parties, et cetera, with others who speak your language? Contact Barbara Baker and give her your ideas on the subject. Her Lab extension is 2659 (Military Evaluations) and she lives at 780 Post Street, Apt. 42, San Francisco, phone TUxedo 5-0889. Watch the BULLETIN for results of this survey and possible future plans.

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ONE YEAR AGO AT USNRDL

Dr. Pearson, Chief of the Biology Branch, U.S. Atomic Energy Commission, visits Lab..... Mr. Soule speaks before BuShips Reserve Officers Unit.....Drs. P.C. Tompkins and Fishler speak on Atomic Defense.....Lab visited by group of officers from Damage Control Training Center, Treasure Island.....Travelers included Drs. Entenman and Kimeldorf, and Mr. D. Jones to various Air Force Bases.....Mr. Howland to Los Alamos...Scientific Director, Dr. Tompkins to NEL, San Diego...Mr. Kennedy to NOTS... Mr. Hillendahl to Denver.

New Employees a Year Ago:
James Basmajian (Bio-Med)
Ed Freiling (Chem-Tech)
John Garcia (Bio-Med)
Warren Heiman (Chem-Tech)
Jarvis Todd (Chem-Tech)
Robert Leen (Eng. Ser.)
William Hallett (Mat. & Acc.)
Joe Law (Nucleonics)
Margaret Brooks (Proj. Off.)
Frank Heilman, Jr. (Spec. Ops.)
Sophia Winokur(Spec. Ops.)
Jack Gretzinger (Bio-Med)
Loren Hyatt (Bio-Med)
Don Davis (Bio-Med)
Paul Toch (Bio-Med)
Jean Sanderson (Chem-Tech)
Antonio Velez (Eng. Ser.)
Major Olson (USMC)
Harry Moyes (Photodosi.)
James Nunn (Bio-Med)

SHOWING OF FILMS

On Tuesday, 19 August, at 1:00 PM, Information Services Branch will present four films at Rawlings Center Theatre. Personnel who are interested and can find time to attend are cordially invited.

1:00 - "The Last Bomb" -- running time - 21 minutes. (in color). Description of bomber and fighter operations, B-29, in the Far Eastern Area, culminating with the dropping of the atomic bomb for the first time in history.

1:30 - "Voting Information" -- running time - 5 minutes (B&W). Portrays how servicemen vote by absentee process, film also concentrates on theme of importance of individual's vote.

1:40 - "Guarding Against Sabotage" -- running time - 32 minutes (B&W). This film discusses in detail various methods of sabotage by the use of fire, explosives and mechanical means. A tour is then taken of a typical defense plant to show common conditions inviting acts of sabotage and precautionary measures which should be taken to prevent unlawful destruction.

2:15 "The Medical Effects of the Atomic Bomb" -- running time - 33 minutes. (in color). This is a new version of the older film of the same name. It describes in a somewhat technical version physics, physical destruction, and casualty effects of the A-bomb.

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LAB TRAVELERS

Dr. Eugene P. Cooper recently went to Thompson Laboratory and the Naval Ordnance Test Station, Pasadena, to attend a conference.

Drs. M.C. Fishler and Stanton S. Cohn went to Southern California the end of last week to visit Riker Corporation and UCLA for discussion of Laboratory problems, and to attend a meeting of the Board of Civil Service Examiners for Junior Scientists and Engineers in Pasadena.

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PROGRESS REPORT ON BOWLING

San Francisco League

Individual averages went up another notch last Friday night as the NRDL Bowling League began to knock pins over like old professionals. Charley Dahlem took High Game honors with a 203 total, followed closely by six other high rollers in this week's "Big Six:" -- Val Franz, 180; Willy Kehrer, 177; Hal Hardy, 175; Perry Finch, 163; and Pauline Machus and Al Guay tied with 161.

High team game was won once again by the Betas with a 597 series.

Team Standings

	Won	Lost
Alphas	5	4
Betas	5	4
Cobalts	5	4
Neutrons	5	4
Gammas	4	5
Protons	3	6

The League will meet again tonight at the Mission Sports Center at 7:45 sharp for another exciting evening. Call Hal Hardy, Ext. 3292 to join the League.

Peninsula League

It's taking the "country" league a while to get started, but once they get going those "city slickers" had better watch out! Last Friday night, high game was tied by Wally Snapp and Art Moskin with an even 200. The League will bowl again tonight at the San Mateo Bowl, 215 S. Ellsworth Street, but beginning next week, 20 August, the regular night will be changed to WEDNESDAY.

The Peninsula is full of NRDLERS and there should be lots of good bowling material to swell the ranks. We need more bowlers. All Lab personnel are welcome, military or civilian. Come on out and try it! Call Wallace Snapp, Ext. 3291 and sign up for an evening of real fun.

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ATTENTION--SCIENTIFIC PERSONNEL

The Professional Development & Training Committee regrets to say that the request by the Bio-Medical Division to institute a course in physiology was disapproved by the Under Secretary of the Navy. There are no plans for establishing such a course in the near future.

SCIENCE AND HUMAN RELATIONS

--From a speech by Dr. Fred J. Emmerich
-- printed in THE CHEMIST, June 1952.

...."Both science and human relations came in with the dawn of the human race. Prehistoric man undoubtedly experimented and gained experience and created amity and also enmity, as people all over the world do today.

The curiosity, the adaptability and the will of man produced for him a workable understanding of the forces of nature and the ability largely to harness them to his wants.

With the advent of the printing press, the organization and application of knowledge began to speed up. The resources of the earth, the air, and the sea have been utilized in greater and greater measure. The means to satisfy the basic needs of man are available in unsurpassed abundance and comfort. Transportation and communication have made all peoples neighbors.

The advances in science in our own time have been fabulous. And yet the world is in turmoil and the turmoil extends from families, to groups, to nations, to all civilization.

All of the things man needs, food, clothing, shelter, are at hand. Nevertheless the strife among men continues and the fruits of science are applied to mutual destruction. Now, where has the failure occurred? I would say that it is in human relations.

When successfully practiced, human relations are a compound of science and art, science based on a study of the past, art based on humanity. When unsuccessful by practice, they are an emotional upset to which neither science nor art would care to claim kinship.

The achievements of science as demonstrated by the results of chemical, medical and industrial research lead to the expectation of future progress unthought of today. Man will have, even beyond the present, the means of happy and full living, or he will have the means of virtually complete self-destruction. The choice which the world will make between these alternatives lies in human relations. And here again, science has given us the means by which to influence the choice.

They consist of applying to human relations, the scientific method of observation, with its dispassionate inferences, its conclusions uninfluenced by prior prejudices.

The application of the scientific method to the problems involved in the manufacture of goods and to the problems of health have been eminently successful. The scientific method proved itself conclusively in the accomplishments in chemistry, medicine, engineering and industry.

The question then arises why should not this approach be extended to relations between men?

The application of the scientific method of human relations requires care and thought--

The study of history--to comprehend natural and legitimate human needs and aspirations;

The study of psychology--to understand their normal expression;

The study of economics--to approximate the extent to which they are unfulfilled and the extent to which our resources will permit their fulfillment;

The study of philosophy--to determine the form in which such fulfillment is most satisfying.

The stakes are high. Granting the difficulties in evaluating the large variety of elements in human relationships, there is no doubt but that the influence of the individual increases, as the number of people concerned and the complexities become less. Each person is therefore a controlling factor in the determination of the nature and the course of the relations he has with other people day by day.

Human and personal relations begin with ourselves--by the way we think--by WHAT we think. If the thoughts we live with are discordant, our relations with others become likewise discordant; if our thoughts are constructive and cooperative, so will our relations be.

We should start with ourselves, know ourselves, and apply that knowledge in an effort to acquire self-discipline and self-control."

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ASSIGNMENT OF CAPT BURKWALL'S DUTIES

During the absence of CAPT Burkwall from the Laboratory, 11 August through 2 September, LT L. J. Smith will assume the general administrative functions of the Radiological Medical Director, and LT V. P. Bond will carry out the routine duties of the BuMed Projects Officer.

COURSE FOR VISITING STUDENT OFFICERS

Beginning next Monday, 18 August, and extending through Friday, 22 August, the Laboratory will conduct an Orientation Course for the Radiological Defense Engineering Student Officers from the Post-Graduate School in Monterey. This is the second class to visit NRDL. Classes will be held in the Conference Room, Building 351-B.

The following is a list of the officers who will attend the course:

Section A

Lt. Col. Allen H. Anderson, USMC
LT Wayne J. Christensen, USN
Capt. Frank D. Conant, USA
Lt. Col. George E. Danald, USA
CDR Alfred H. Higgs, USN
Capt. William M. Home, USA
CDR William W. Jones, USN
CDR Earl W. McLaughlin, USN

Section B

LT Mark F. Mitchell, USCG
Major Russell J. Nash, USAF
Lt. Col. John J. Neuer, USAF
LCDR David A. Pickler, USN
Capt. Buren R. Shields, Jr., USA
Capt. Arthur J. Steele, USAF
Major Julius L. Yucker, Jr., USAF

Schedule of Events for the Week

Monday, 18 August

AM

Subject	Speaker
Report in - Security Badges - Sign in BOQ	CDR P. S. Johnson
Welcome Address	CAPT A. L. Becker
History -Mission - Organization of USNRDL	CAPT J. L. Bird

PM

Scientific Program at USNRDL	Dr. P. C. Tompkins
Military Applications	Mr. W. E. Strope

Tuesday, 19 August

AM

Subject	Speaker
Introduction -Chem. Tech. Div. Program	Dr. E. R. Tompkins
Atomic Bomb Debris	Dr. F. R. Holden
Radiochemical Properties of the Fission Products	Dr. N. E. Ballou
Scaling of Atomic Bomb Effects	Dr. L. B. Werner
Aerosol Generator Contaminating Samples & Decontaminating Equipment with Samples	Dr. L. B. Werner
Hot Particle Identification, Radio-autographs & Pictures from Operations Greenhouse & Jangle	Dr. F. R. Holden

PM

Introduction -Nucleonics Div. Program	Dr. A. Guthrie
Thermal Equipment	Mr. A. B. Willoughby
Thermal Medical Aspects	LTJG G. E. Sheline
Thermal Demonstration	Mr. A. B. Willoughby LTJG G. E. Sheline
Beta-Gamma Hazard & Radiation Energies	Mr. P. R. Howland
Crystal Dosimetry	Mr. R. S. Alger
Radiac Program	Mr. A. H. Redmond
Radiac Evaluation Program	Mr. G. A. Work

Wednesday, 20 August

AM

Subject	Speaker
Introduction - Bio-Medical Div.	Dr. M. C. Fishler
Field Studies	LTJG R. E. Carter
Acute Total-body Radiation Illness	LT V. P. Bond
Immunological Studies	Dr. M. S. Silverman
Effects of Radiation on Performance	Dr. D. J. Kimeldorf
Psychological Effects of Radiation	Mr. G. R. Hunt
Long-Term Effects of Radiation	Dr. R. W. Brauer
Biochemical Effects of Radiation	Dr. C. Entenman
Studies with Isolated Organs	Dr. R. W. Brauer
Partial-body Radiation Studies	Miss M. N. Swift
Preventive and Therapeutic Measures	Mr. L. J. Cole

PM

Reserved for Use of USNRDL Director

Thursday, 21 August

AM

Subject	Speaker
Introduction -BioMedical Demonstrations	LT V. P. Bond
Performance, Psychology	Dr. D. J. Kimeldorf Mr. G. R. Hunt
Animal Colony, X-ray Machine	Major R. J. Veenstra
Field Studies	LTJG R. E. Carter
Iron Uptake Studies	LT J. S. Reed
Biochemistry	Dr. C. Entenman
Internal Decontamination	Dr. S. H. Cohn
Bacteriology	Dr. M. S. Silverman
Spleen Studies	Mr. L. J. Cole
Partial-Body Studies	Miss M. N. Swift
Isolated Organs	Dr. R. W. Brauer

PM

Board bus for field trip to Navy Radiological Lab, Oakland

Friday, 22 August

AM

Subject	Speaker
Contamination Distribution & Some Factors in the Decontamination of a Target Complex	Dr. L. B. Werner
Shielding Problems	LTJG S. D. Softky
The Protection & Reclamation of Military Targets	Mr. M. B. Hawkins
Significance of Field Test Information	Dr. E. P. Cooper
Operation Washdown	Mr. M. M. Bigger

PM

Operational Aspects	Major D. A. Kellogg
Future Plans for USNRDL	Dr. P. C. Tompkins
Conference	ALL
Clearance	CDR P. S. Johnson

NRDLER BECOMES BENEDICT

Mr. Richard Hillendahl, of Thermal Radiation Branch, Nucleonics Division, was married on 2 August in Oakland to Miss Lorraine Elmstedt. They are honeymooning in the mountains, and upon their return will live in San Lorenzo.

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EMPLOYEE ON THE WING

Mr. Seymour Pudding, Staff Scientific Assistant of Bio-Med Division, left the Laboratory today to take a position with the 11th Naval District Supervisory Cost Inspector in renegotiation and redetermination of Government contracts. Mr. Pudding will be with the Branch Office in Los Angeles, which is his home town. In addition to his work, Mr. Pudding will take work in business administration at UCLA toward a Ph. D. All success to him in his ambitious undertakings!

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MUSIC OF THE ATOMS

The Oak Ridge Symphony gave the premiere performance of the "Overture to the Dedication of a Nuclear Reactor," composed by Arthur Roberts, Professor of Physics, and directed by Waldo Cohn, Biochemist. A report in the BULLETIN OF THE ATOMIC SCIENTISTS, April 1952, stated-- "It was well received, particularly by those scientists who recognized in it the excitement of a reactor 'going critical.' 'It is serious music in that it is intended to stand on its own merits of music when heard without knowledge of the program,' explained Prof. Roberts. 'However it is not solemn, but humorous.' The composer further displayed his virtuosity by using themes based on numbers in atomic energy work (such as the atomic numbers of uranium and plutonium) and on familiar letter combinations (such as AEC).

CALENDAR OF EVENTS

At USNRDL

WEDNESDAY 20

2:00 — Management Seminar in Conference Rm., Shop 11, Bldg. 411.
Speaker: Mr. Russell T. Sharpe, Adm. V-Pres. Golden Gate College.
Subj: "Combining and Separating Activities."

THURSDAY 21

2:00 — Technical Reports Writing Course, in Conference Rm., Bldg. 351-B. Under auspices Ext. Div. of Univ. of Calif.
Instructor: Mr. Jarvis Todd, Technical Editor, Chem Tech Div., NRDL.

In the Bay Area

MONDAY 18 through FRIDAY 22 — Western Mortgage Banking Seminar at Stanford Univ. Under auspices of Graduate School of Business.

Radio

SUNDAY 17

10:30 AM — University Explorer, over BCBS
Subj: "What's in the Air?" A story of dust and fumes which pollute the atmosphere of the industrial centers of the nation.

Other Locations

WEDNESDAY 27 through FRIDAY 29

1:00 PM - 10:00 PM — Western Electronic Show and Convention at Municipal Auditorium, Long Beach, Calif. Show is held jointly with the Annual Western Convention of the Institute of Radio Engineers, providing an opportunity of seeing newest equipment and keeping abreast with pyramiding applications of the electron at work. Visitors must register. General public not admitted.

THURSDAY - SUNDAY

Aug. 28 - Sept. 7 — California State Fair in Sacramento. The California Section of the American Chemical Society will present an exhibit. The theme selected is the contributions chemistry is making to agriculture. Ideas along this line for the exhibit are requested by the chairman, Fred Stross, of Shell Development Co.

CALENDAR OF ENTERTAINMENT

East-West Arts Gallery

Lecture

Indian Philosophy in Western Practice by Dr. Haridas Chauduri - Aug. 20 at 8:00 PM

San Francisco Museum of Art

Music

Seventh Annual Campion Festival.
Concert by Judy Maas, mezzo-soprano, Stephanie Shehatovitch, pianist, and Robert Lancaster, bass-baritone.
Aug. 21 at 8:20 PM

Exhibits

Continuing Kandinsky paintings through Aug. 26

Lecture

Kandinsky by Lore Oppenheimer
Aug. 17 at 3:00 PM
English Watercolor Painting (illustrated) by John Gaulld, A.R.S.A.
Aug. 20 at 8:00 PM.

California Palace of the Legion of Honor

Motion Picture

Of Mice and Men - Aug. 16 at 2:00 PM.

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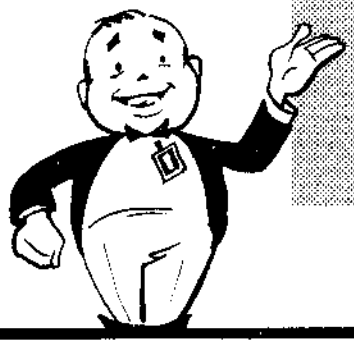
LATE NEWS

MUTUAL AID PAYMENT DUE

Since the formation of the Mutual Aid Benefits Association there have been seven deaths. Two assessments of 25 cents each have already been paid. Of the remaining five, assessment for only two is necessary in order to maintain an adequate balance. The deadline for this payment is 2 Sept 1952. Members are asked to pay 50 cents to Dee Franco, Code 3-286C, Bldg. 508, Room 206.

MORE ANTICIPATED VISITORS

Commanders E. P. Cronkite and R. A. Conard of the Naval Medical Research Institute, Bethesda, Maryland, will visit LT V. P. Bond next Monday, 18 August.



NRDLERS' HANDBOOK

Code 12

NUCLEAR RADIATION BRANCH

Nuclear Radiation Branch of Nucleonics Division has diversified activities which combine to discover different aspects of ionizing radiations. From time to time reports of such work of the Branch as may be divulged will appear in the HANDBOOK.

In this article Mr. Alger, Head of the Branch, describes some of the various types of dosimeters.

The possibility of casualties, both civil and military, in the case of atomic warfare has led to an extensive search for a simple dosimeter suitable for measuring dosages throughout the casualty range, e.g., 50 to 600 r. The public press has been quick to publicize developments in this field and frequently new developments have been pictured as solutions to the civil defense problem before inherent bugs have been ironed out. Consequently, a series of dosimeters which include the UCLA chemical dosimeter, various electrostatic type chambers, the Polaroid self-developing film badge, and the phosphate glasses have appeared to be on the verge of nation-wide use at dime store prices. Actually, the original estimates have undergone inflation and the dosimeters in or ready for production will cost up to several dollars. In addition to the work carried on by various government agencies, a number of private companies have made contributions and developments of their own. For example, the Polaroid Corporation has provided the owners of Land cameras with a small button of material which produces localized fogging of the film under gamma ray exposure, thus converting the camera into a crude dosimeter. At the present time no single dosimeter has proved satisfactory for all operating conditions; consequently, a choice must be based on the characteristics which make it least objectionable for a specific use. Furthermore, such questions as the psychological influence of the reader on the reading, or the correct interpretation of the total body exposure based on a small sampling area are not answered by existing dosimeters and some training in the interpretation of readings is desirable before existing dosimeters can be used in an intelligent fashion. The following outline summarizes the characteristics and advantages of a number of casualty dosimeters currently under development. Since all of these devices are still in the state of development, it is hoped that many of the disadvantages mentioned may be removed.

1. Chemical Dosimeter

The chloroform-alcohol dye system employed in the UCLA dosimeter is typical of the chemical dosimeters which change color or conductivity under ionizing radiations. A radiation induced chemical chain reaction changes the pH of the solution and results in a change in the color of the indicator dye. The sensitivity of the solution is controlled by an inhibitor such as alcohol which is used to control the radiation dosage required for a change in the color of the indicator dye. The actual dosimeter consists of a series of vials containing solutions sensitive to different exposures. One of the chief problems has been to obtain sufficient sensitivity and still maintain adequate stability. These solutions are both heat and light sensitive, and considerable difficulty has been encountered in storing the dosimeters over long periods of time in other than

ideal laboratory conditions. Most of the technical production problems center around the extreme purity and reproducibility required in the solutions.

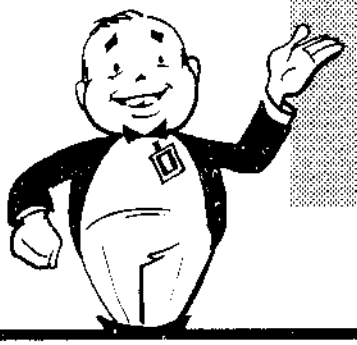
2. Electrostatic Dosimeter

Combinations of quartz fiber electroscopes and condensers have been packaged in various terms to serve as personnel dosimeters. Under ionizing radiations the condenser gradually discharges, due to the passage of charge in the dialectric medium, and the amount of discharge serves as a measure of the radiation exposure. Unfortunately, all insulating materials show a certain amount of conductivity under the most ideal conditions; consequently, these electrostatic dosimeters will discharge gradually over a period of time and therefore are not ideally suited for an integrating device which would be capable of operation over a period of months. Periodic recharging of these dosimeters is normally employed to offset the leakage; however, a certain amount of uncertainty is introduced in knowing how much discharge is due to radiation and what fraction represents normal leakage which can only be offset by a certain amount of bookkeeping either mental or paper. Since the Roentgen unit is based on ionization in air the electrostatic dosimeters employing air volumes have the advantage of no energy dependence in their response to gamma rays. The dosimeters have been packaged in containers resembling fountain pens, exposure meters, cigarette cases, and wrist watches.

3. Phosphate Glass Dosimeter

The glass in this dosimeter does not fluoresce under ultra-violet illumination until some of the silver dissolved in the glass has been reduced under ionizing radiation. The fluorescence yield is proportional to the dosage received and serves as a basis for dosimetry. Although large pieces of glass can be observed to fluoresce visually it has been found more practicable to use a fluorophotometer for dosimetric purposes. This need for an external reader is the chief limitation of the phosphate glass which not only adds to the cost of dosimetry but makes it impracticable for use as a self-reading badge. The glasses are rugged, stable over long periods of time and unaffected by visible illumination.

A description of other dosimeters will appear in an early issue of the HANDBOOK.



NRDLERS' HANDBOOK

NOTEWORTHY NRDLERS

MEET -- MR. HATAK

James Hatak, Engineering Services' new Toolmaker-Leadingman, has realized a family dream--a home in California! That dream originated long ago in the mind of Mr. Hatak's mother. At the age of 15, she came all by herself to this country from Czechoslovakia to join her brother in Canada. Tales of the Golden West kindled the spark of the dream, and after two years, she set out for California, stopping first at Chicago. There, Fate, in the form of a young Czech named Hatak, intervened, and the dream was left to smolder. James Hatak was born to the young couple in Chicago during World War I.

In Sterling Morton High School in Cicero, a suburb of Chicago, Jim majored in machine shop, mathematics, and drafting. He graduated in 1935 and went to work as an apprentice toolmaker at Illinois Tool Works. As a part of his apprenticeship he attended Washburne Trade School, specializing in machine drafting and shop mathematics. This combination of school and job lasted four years, culminating in his graduation as a Journeyman Toolmaker.

In 1941, Mr. Hatak left the Tool Works to take a position as toolmaker and planner-estimator at the U. S. Naval Ordnance Plant, Forest Park, Illinois. Work at the Plant in war time centered on naval armaments, foremost being rockets and torpedoes for all types of naval vessels. After six years of weapons making, a change seemed desirable, and he became affiliated with General Motors Corporation at La Grange, Illinois, as toolmaker in the Process Engineering Department, developing the different manufacturing processes involved in the construction of Diesel locomotives.

In 1950, he returned to the Naval Ordnance Plant. The following year employment inquiries yielded information that a toolmaker position at NRDL was available. He accepted the job "by mail," and thus answered the call to California heard by his mother before he was born. (Incidentally, she has already been out for a visit and is still hanging on tightly to the dream for herself.)

In his position as Toolmaker-Leadingman in charge of the Shop of Engineering Services, Mr. Hatak will be the contact man for all Laboratory personnel who desire shop work. When they learn to "ask for Jim" his work day will boast not one dull moment! Among the shop's most important tasks is the manufacture of equipment used in various radiological field tests in which the Laboratory participates. The Shop's work encompasses a variety of skills and a great many different types of materials. One day they will be working with lucite, the next with aluminum, then with steel, and so on---.

Before he came to California, Mr. Hatak's chief recreation was fishing in the "thousand lakes" of Minnesota. It goes without saying, however, that he is primarily interested in construction. He has built a number of garages and hopes someday for time enough to build a house. With his present strenuous duties, he has to be content with puttering around the house he recently bought at 2470 Carson Street, Redwood City.

Mr. Hatak and his wife, Lorraine, were childhood neighbors, enjoying the same interests, and, of course, the usual fights. They were married in 1941, and their children, Donna Sue and James Lawrence, were born in Chicago. Much of his leisure is spent taking home movies of them, but he manages to find time to bowl each week with the NRDL "Country Hicks" Peninsula League.